

Name: \_\_\_\_\_

Date: \_\_\_\_\_

[4 pt] 1. Complete the following table:

Property	Alkenes	Alkynes
Functional Group		
Naming "ending"		
Location (Y/N)		
Shape/Bond Angle		

[6 pt] 2. Define the term Geometric Isomer (cis-trans isomer). What are the **TWO** requirements for a molecule to be capable of having cis-trans isomers? Draw **AND** label two molecules illustrating a cis and a trans isomer.

[5 pt] 3. Which of the following molecules have structural formulas that permit cis-trans isomers to exist (Yes/No). Explain your answers.

(a)  $\text{CCl}_2=\text{CBr}_2$  3(a) \_\_\_\_\_

(b)  $\text{CH}_3\text{CH}=\text{CHCl}$  3(b) \_\_\_\_\_

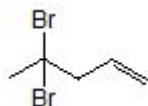
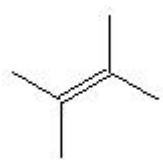
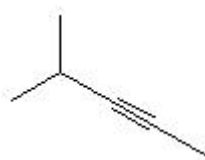
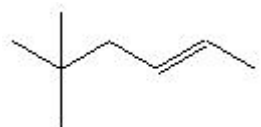
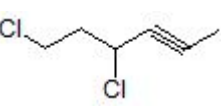
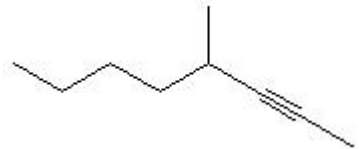
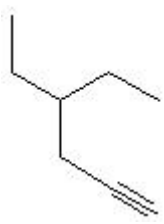
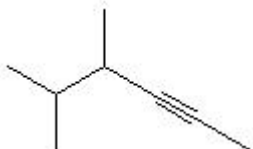
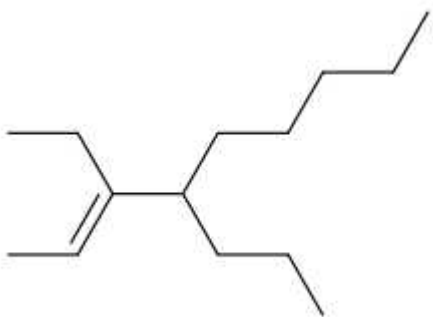
(c)  $\text{CH}_2=\text{CHCl}$  3(c) \_\_\_\_\_

(d)  $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CCH}_3$  3(d) \_\_\_\_\_

(e)  $(\text{CH}_3)_2\text{C}=\text{CHCH}_3$  3(e) \_\_\_\_\_

CHE 102 - Homework - Ch 20a

[10 pt] 4. Name the following molecules using IUPAC nomenclature:

<p>(a) <math>\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\text{CHCH}_3</math></p>	<p>(b) </p>
<p>(c) </p>	<p>(d) </p>
<p>(e) </p>	<p>(f) </p>
<p>(g) </p>	<p>(h) </p>
<p>(i) </p>	<p>(j) </p>

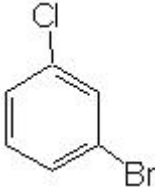
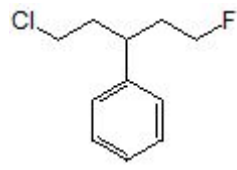
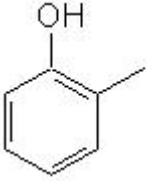
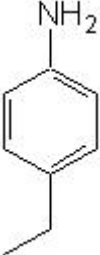
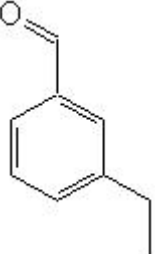
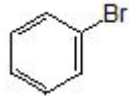
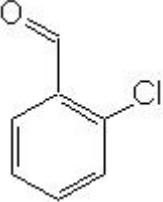
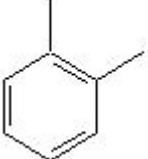
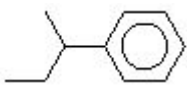
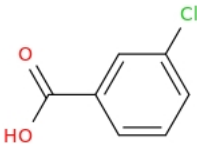
CHE 102 - Homework - Ch 20a

[10 pt] 5. Draw the following molecules using Lewis Structure or Line Drawings:

(a) 2-chloro-3-octene	(b) 4-methyl-1-heptyne
(c) 4-ethyl-2-hexyne	(d) 6-methyl-3-heptene
(e) 3-ethyl-4-propyl-2-nonene	(f) 3-bromo-4-methyl-2-hexene
(g) 3-ethyl-5,5-dimethyl-2-hexene	(h) 2-bromopentane
(i) cis-2-pentene	(j) trans-2-pentene

CHE 102 - Homework - Ch 20a

[10 pt] 6. Name the following molecules using IUPAC nomenclature:

<p>(a)</p> 	<p>(b)</p> 
<p>(c)</p> 	<p>(d)</p> 
<p>(e)</p> 	<p>(f)</p> 
<p>(g)</p> 	<p>(h)</p> 
<p>(i)</p> 	<p>(j)</p> 

CHE 102 - Homework - Ch 20a

[10 pt] 7. Draw the following molecules using Lewis Structure or Line Drawings:

(a) p-chlorobenzaldehyde	(b) nitrobenzene
(c) p-ethylphenol	(d) o-bromoaniline
(e) 1,5-diphenyl-3-heptyne	(f) p-ethylpropylbenzene
(g) 3-ethyl-4-phenyl-2-heptene	(h) m-ethylbenzaldehyde
(i) m-chloroethylbenzene	(j) m-nitrobenzoic acid