

## Organic Chemistry Unit Review

Name:

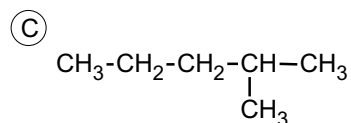
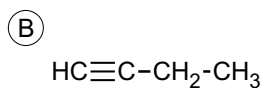
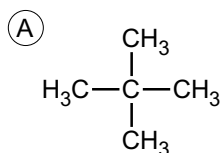
Date:

Block:

Answer the questions in the space provided.

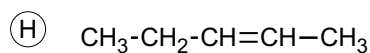
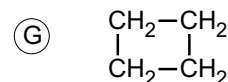
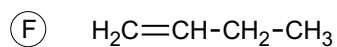
1. Of the following molecules, choose 2 that best fit each description.

- |   |                 |
|---|-----------------|
| a) Structural Isomers                     | a) _____, _____ |
| b) Unsaturated Hydrocarbons               | b) _____, _____ |
| c) Have the general formula $C_nH_{2n+2}$ | c) _____, _____ |
| d) When water is added, forms an alcohol  | d) _____, _____ |
| e) Contain alkyl groups                   | e) _____, _____ |



(D) 2-butene

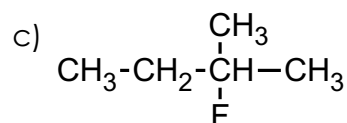
(E) pentane



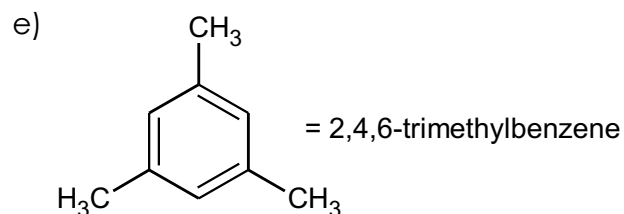
2. Explain what is wrong with each of the following. If a given name is incorrect, provide the correct name.

a) 2-ethylheptane

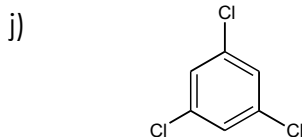
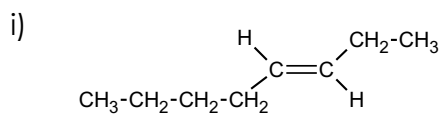
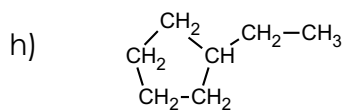
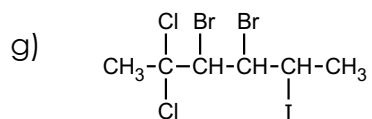
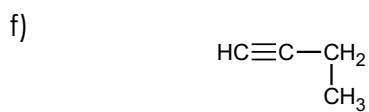
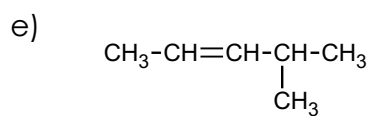
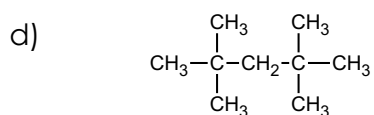
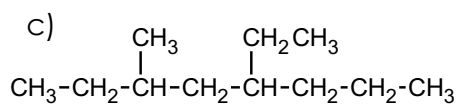
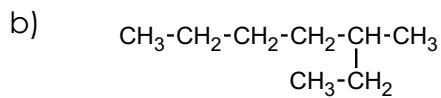
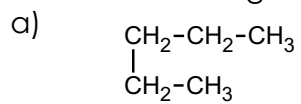
b) 5-methylhexane



d) 2-fluoro-4-hexyne



3. Name the following molecules.



4. Draw the structures of the following compounds.

a) 3-ethyl-4-methyloctane

b) 3-heptyne

c) 3,3-diethylpentane

d) 3-chloro-1-ethylbenzene

e) 2,2,3,3-tetramethylbutane

f) 1-chloro-3,4-dimethylcyclohexane

g) 3-iodo-1-propyne

h) dichloromethane

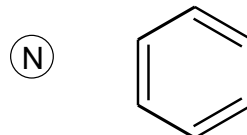
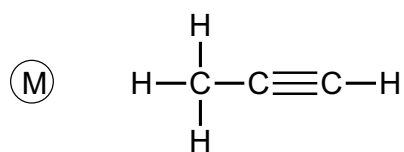
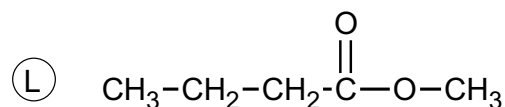
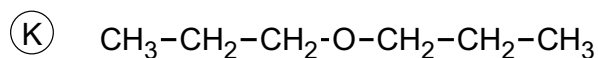
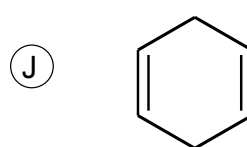
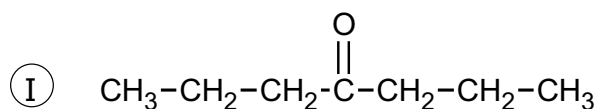
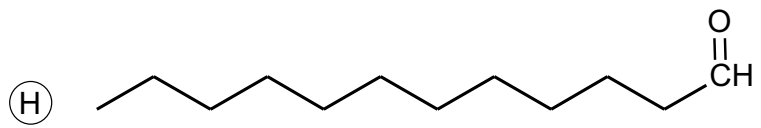
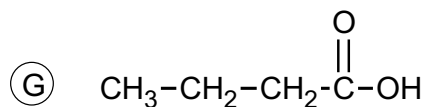
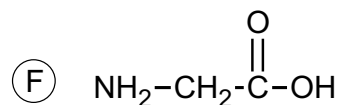
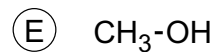
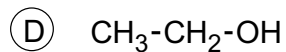
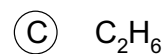
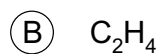
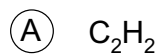
i) 3-heptene

j) cis-2-pentene

5. **Draw** and **name** all of the structural isomers of  $\text{C}_5\text{H}_{12}$ . There are 3!

6. **Draw** and **name** as many structural isomers for  $\text{C}_4\text{H}_9\text{OH}$ . There are 4!

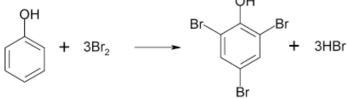
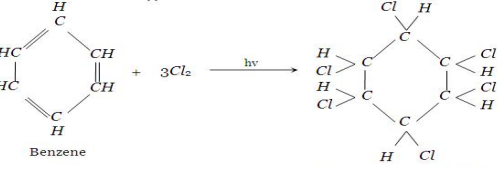
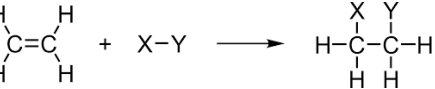
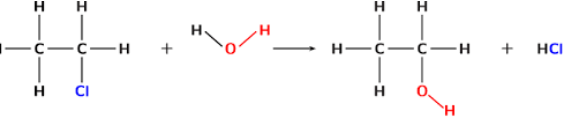

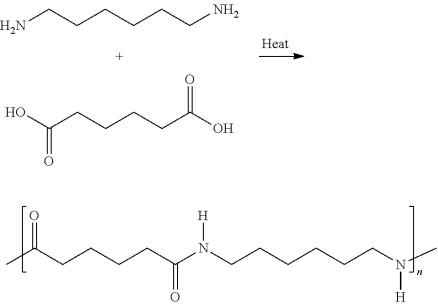
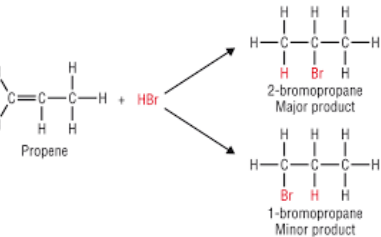

7. Match the following compounds to their appropriate descriptions.



1. \_\_\_\_ Ethanol
2. \_\_\_\_ A carboxylic acid
3. \_\_\_\_ A saturated hydrocarbon
4. \_\_\_\_ A ketone
5. \_\_\_\_ An aromatic ring
6. \_\_\_\_ propyne
7. \_\_\_\_ An ether
8. \_\_\_\_ An ester

9. \_\_\_\_ An aldehyde
10. \_\_\_\_ Benzene
11. \_\_\_\_ Alkane
12. \_\_\_\_ Alkene
13. \_\_\_\_ Alkyne
14. \_\_\_\_ Methanol
15. \_\_\_\_  $C_6H_6$
16. \_\_\_\_  $C_6H_8$

8. Classify the following types of reactions as combustion, substitution, addition, elimination or polymerization:

<p>a)</p>  <p>Reaction of phenol with bromine to form 2,4,6-tribromophenol and hydrogen bromide.</p>	
<p>b)</p>  <p>Reaction of benzene with chlorine under UV light to form hexachlorocyclohexane.</p>	
<p>c)</p>  <p>Reaction of ethene with a diatomic molecule X-Y to form ethane.</p>	
<p>d)</p>  <p>Reaction of chloroethane with water to form ethanol and hydrogen chloride.</p>	
<p>e)</p>  <p>General substitution reaction of a metal complex with a ligand Y.</p>	
<p>f)</p>  <p>Polymerization of 1,6-hexamethylenediamine and adipic acid to form a polyamide.</p>	
<p>g)</p>  <p>Reaction of propene with HBr showing two possible products: 2-bromopropane (major) and 1-bromopropane (minor).</p>	
<p>h)</p>  <p>Elimination reaction of 2-bromopropane with hydroxide ion to form propene and bromide ion.</p>	

### Extra Challenge!

1. Draw this molecule: 4,4,5-triethyl-2,3,5,6,8,8,-hexamethyl-6,7-dipropyldecane

2. Name the following compound:

