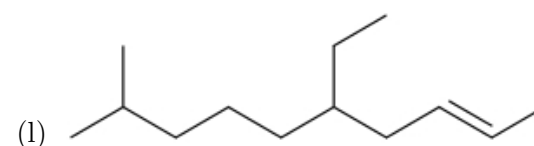
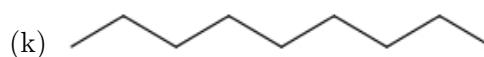
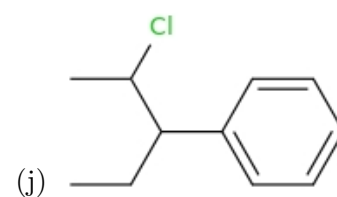
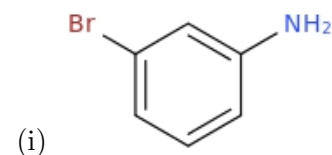
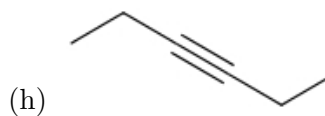
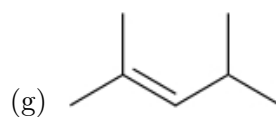
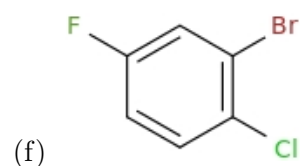
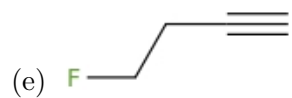
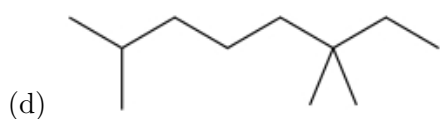
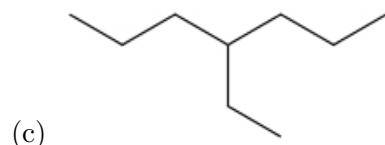
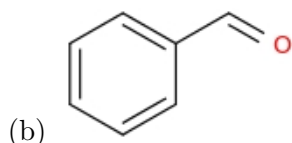
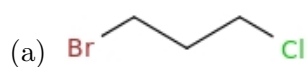


Name: _____

Class: _____

Date: _____

[24 pt] 1. Give the IUPAC name of the following molecules



(a)

(g)

(b)

(h)

(c)

(i)

(d)

(j)

(e)

(k)

(f)

(l)

[20 pt] 2. Draw the following organic molecules:

(a) 3-methyl-3-heptene

(f) toluene

(b) 2-pentyne

(g) p-chlorophenol

(c) o-dichlorobenzene

(h) 2,3-dimethylbutane

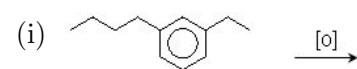
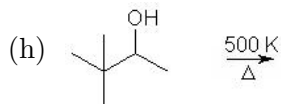
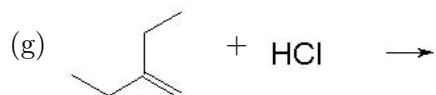
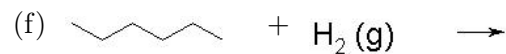
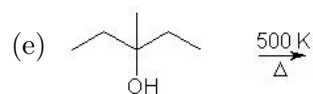
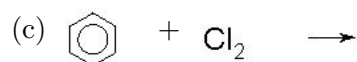
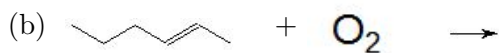
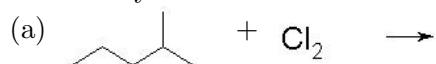
(d) 2,2,3-trimethyl-4-nonyne

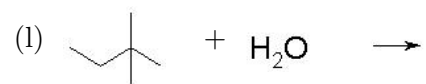
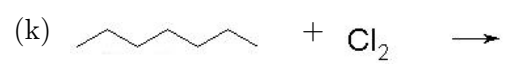
(i) 3-ethyl-2-methylhexane

(e) 2,2-diphenylpentane

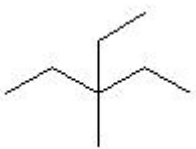
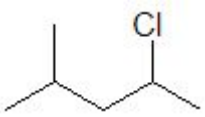
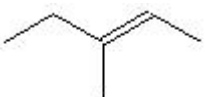
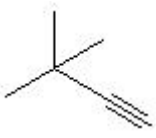
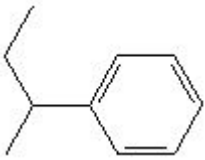
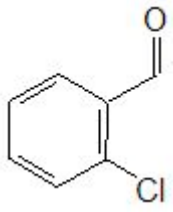
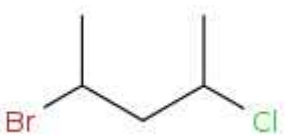
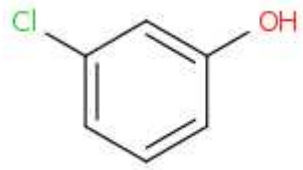
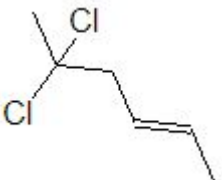
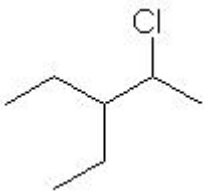
(j) 8,8-dichloro-2-nonene

[36 pt] 3. Complete the following reactions in the format given. Assume all substitution reactions are monosubstitutions only. Circle the favored product in a reaction. Include states where appropriate. Be sure to balance any combustion reactions. If no reaction occurs put NR for the products.





[20 pt] 4. Give the IUPAC name of the following molecules

<p>(a)</p>  <p>A skeletal structure of a branched alkane. The longest carbon chain is five carbons long, making it a pentane derivative. Numbering from the end closest to the most branching (the right side), we have a methyl group at C2, a methyl group and an ethyl group at C3.</p>	<p>(b)</p>  <p>A skeletal structure of a branched alkane. The longest carbon chain is five carbons long, making it a pentane derivative. Numbering from the end closest to the most branching (the right side), we have a methyl group at C3 and a chlorine atom at C2.</p>
<p>(c)</p>  <p>A skeletal structure of an alkene. The longest carbon chain containing the double bond is five carbons long, making it a pentene derivative. The double bond is between C2 and C3, and there is a methyl group attached to C2.</p>	<p>(d)</p>  <p>A skeletal structure of an alkyne. The longest carbon chain containing the triple bond is four carbons long, making it a butyne derivative. The triple bond is between C1 and C2, and there are two methyl groups attached to C2.</p>
<p>(e)</p>  <p>A skeletal structure of an alkylbenzene. It consists of a benzene ring with an ethyl group and a methyl group on the same carbon atom, and a propyl group attached to the adjacent carbon atom.</p>	<p>(f)</p>  <p>A skeletal structure of a benzene ring with an aldehyde group (-CHO) and a chlorine atom (-Cl) attached to adjacent carbons (ortho position).</p>
<p>(g)</p>  <p>A skeletal structure of a branched alkane. The longest carbon chain is five carbons long, making it a pentane derivative. Numbering from the end closest to the most branching (the right side), we have a methyl group at C2, a chlorine atom at C4, and a methyl group at C3. There is also a bromine atom at C2.</p>	<p>(h)</p>  <p>A skeletal structure of a benzene ring with a hydroxyl group (-OH) and a chlorine atom (-Cl) attached to carbons that are two positions apart (meta position).</p>
<p>(i)</p>  <p>A skeletal structure of an alkene. The longest carbon chain containing the double bond is five carbons long, making it a pentene derivative. The double bond is between C2 and C3, and there is a methyl group at C2. There are two chlorine atoms attached to C1.</p>	<p>(j)</p>  <p>A skeletal structure of a branched alkane. The longest carbon chain is five carbons long, making it a pentane derivative. Numbering from the end closest to the most branching (the right side), we have a methyl group at C2, a chlorine atom at C2, a methyl group at C3, and a methyl group at C4.</p>

[20 pt] 5. Draw the following organic molecules:

(a) 3-heptene

(f) benzaldehyde

(b) 2-hexyne

(g) toluene

(c) p-bromobenzoic acid

(h) 2,2-dimethylbutane

(d) 2,2,3-trimethyl-4-nonyne

(i) 4-propyloctane

(e) 3-phenyl-1-pentene

(j) 2,2-dibromo-3-chloro-6,6-diethyl-4,5-dimethyldecane

[30 pt] 6. Complete the following reactions in the format given. Assume all substitution reactions are monosubstitutions only. Circle the favored product in a reaction. Include states where appropriate. Be sure to balance any combustion reactions. If no reaction occurs put NR for the products.

