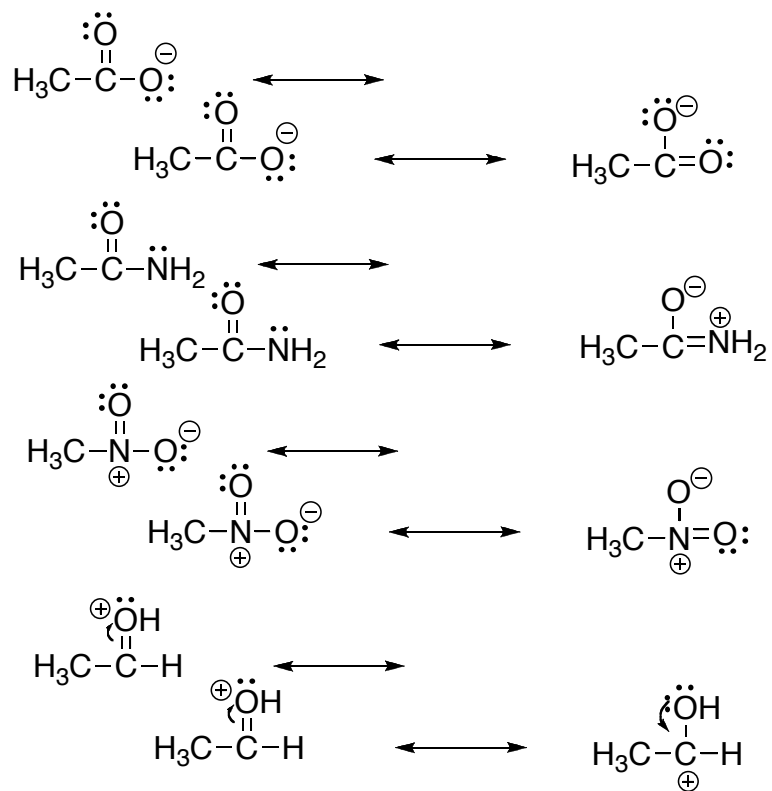


**CEM143, Problem Set #1**  
**Chapters 1-2**

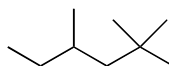
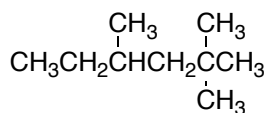
1. Draw Lewis dot structures and stick structures of the following compounds and calculate the formal charge for the indicated atoms:

	Lewis Structures	Stick Structures	Formal Charges
$\text{CH}_3\text{I}$	<pre>       H         H : C : I :               H           </pre>	<pre>       H         H - C - I               H           </pre>	$\text{C} = 0$
$\text{NH}_3$	<pre>       H         : N : H               H           </pre>	<pre>       H         H - N - H               H           </pre>	$\text{N} = 0$
$\text{NH}_4^+$	<pre>       H         H : N : H               H           </pre> <p style="text-align: right; margin-right: 20px;"><math>\oplus</math></p>	<pre>       H         H - N - H               H           </pre> <p style="text-align: right; margin-right: 20px;"><math>\oplus</math></p>	$\text{N} = +1$
$\text{CH}_3\text{NO}_2$	<pre>       H         H : C : N                   H   O                       O                       H           </pre>	<pre>       H         H - C - N                   H   O                       O                       H           </pre> <p style="text-align: right; margin-right: 20px;"><math>\ominus</math></p>	$\text{N} = +1$
$\text{CH}_2\text{N}_2$	<pre>       H               C : : N : : N :               H           </pre>	<pre>       H               C = N = N               H           </pre> <p style="text-align: right; margin-right: 20px;"><math>\oplus</math> <math>\ominus</math></p>	$\text{C} = 0$

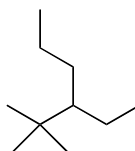
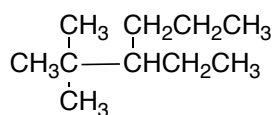
2. Draw a resonance structure for the following compounds:



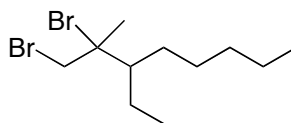
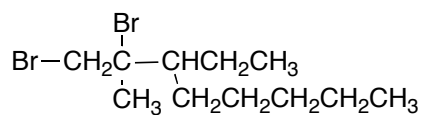
3. Convert the following structural (stick) formulas into line formulas and name the compounds:



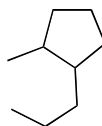
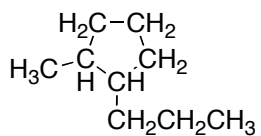
2,2,4-trimethyl hexane



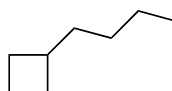
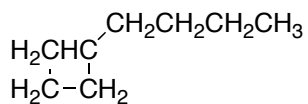
3-ethyl-2,2-dimethylhexane



1,2-dibromo-3-ethyl-2-methyl octane



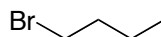
2-methyl-1-propyl cyclopentane



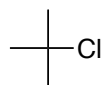
butylcyclobutane

4. Draw the structures that correspond to the following names:

butyl bromide



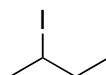
t-butyl chloride



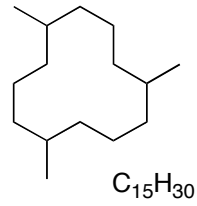
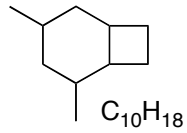
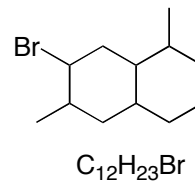
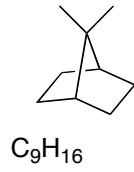
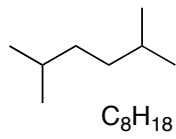
iso-propyl chloride



sec-butyl iodide



5. Provide the chemical formulas for:



6. Draw all possible tribromopropanes:

