1. Determine the formula of the ionic compounds given the following elements. Name each compound.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>a) cesium (Cs) and fluorine</td>
<td>CsF</td>
<td>cesium fluoride</td>
</tr>
<tr>
<td>b) calcium and sulfur</td>
<td>CaS</td>
<td>calcium sulfide</td>
</tr>
<tr>
<td>c) potassium and nitrogen</td>
<td>K₃N</td>
<td>potassium nitride</td>
</tr>
<tr>
<td>d) aluminum and sulfate</td>
<td>Al₂(SO₄)₃</td>
<td>aluminum sulfate</td>
</tr>
<tr>
<td>e) ammonium and nitrate</td>
<td>NH₄NO₃</td>
<td>ammonium nitrate</td>
</tr>
<tr>
<td>f) carbon and bromine</td>
<td>CBr₄</td>
<td></td>
</tr>
</tbody>
</table>

2. Draw the Lewis structure for the following compounds

   a) SCl₂

   ![SCl₂ Lewis structure](image)

   b) NNO

   ![NNO Lewis structure](image)

   c) C₂Cl₄F₂

   ![C₂Cl₄F₂ Lewis structure](image)
3. Draw and name six structural isomers for the compound $C_8H_{18}$. (Be sure to clearly show all bonds between carbon and hydrogen.)

<table>
<thead>
<tr>
<th>Structure</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="n-octane" /></td>
<td>$n$-octane</td>
</tr>
<tr>
<td><img src="image" alt="2-methylheptane" /></td>
<td>2-methylheptane</td>
</tr>
<tr>
<td><img src="image" alt="3-methylheptane" /></td>
<td>3-methylheptane</td>
</tr>
<tr>
<td><img src="image" alt="2,2-dimethylhexane" /></td>
<td>2,2-dimethylhexane</td>
</tr>
<tr>
<td><img src="image" alt="2,3-dimethylhexane" /></td>
<td>2,3-dimethylhexane</td>
</tr>
</tbody>
</table>
4. Are there any structural isomers of the compound $\text{C}_9\text{H}_{20}$ with a parent chain five carbons long? If so draw an example and name the compound. If there are no structural isomers with a parent chain of five carbons, briefly explain why.

2,4-dimethylhexane

2,2,4,4-tetramethylpentane

or

3,3-diethylpentane