CH 3, 7 and 8 Practice Assessment ~ HONORS CHEMISTRY

The following questions should be answered with your periodic table ONLY. They represent a small portion of the content that you will tested on with your CH 3, 7 and 8 Assessment.

1. Write the name of the element that fits each description: 7 valence electrons in the 6th Energy Level. What class is this element? Name three general properties of this class of element. What oxidation number will this element attain when it becomes like a noble gas? Name the noble gas.

2. Write the complete electron configuration for the element in Group 13, Period 4 of the periodic table.

3. Give the SYMBOL of the element with the following abbreviated electron configuration: [Xe]6s^14f^145d^5 Why do transition and inner transition elements have multiple oxidation numbers?

4. Write the electron configuration for indium, atomic number 49. Use the noble gas, inner core abbreviation.

5. If the chemical formula of calcium phosphide is Ca_3P_2, what is the formula for barium nitride? How do you know?

6. If the chemical formula for aluminum sulfide is Al_2S_3, what is the formula for indium oxide? How do you know?

7. Explain the trend in decreasing atomic radius from left to right in the Period 2 elements.

8. Pick the ion in the following pairs that has the smaller ionic radius and explain your answer: Mg^{2+} and Na^{+}; N^{3-} and O^{2-}

9. Calculate the physical constants missing from the data table below, and fill in the other missing information:

<table>
<thead>
<tr>
<th>Element</th>
<th>Atomic Radius (pm)</th>
<th>Atomic Mass (u)</th>
<th>Class</th>
<th>Group</th>
<th>Period</th>
<th># e^-</th>
<th>Outer Energy Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Se</td>
<td>117</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Te</td>
<td>138</td>
<td>127.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Po</td>
<td></td>
<td>208.982</td>
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</tr>
</tbody>
</table>

10. Using the dimensional analysis technique and the following conversion factors complete the problems below:

1.00 inch = 25.4 mm     1.00 m = 1000 mm     101.3 kPa = 760.0 mm
1.00 mole = 6.02 x 10^{23} 1 paperclip = 3.0 cm     100 cm = 1.0 m
1 Earth Circumference = 24,901.55 miles     1.0 m = 39.37 inch
1000 m = 1.0 km

a. The barometric pressure in Brighton is 642 mm of Hg. How many kPa is this? How many inches of Hg?

b. If you have 1.00 mole of paperclips clipped end to end, how many times around the earth would the mole of paperclips travel?