Assignment #12: Lewis and Bohr Regents Questions

1.) What is represented by the dots in a Lewis electron-dot diagram of an atom of an element in Period 2 of the Periodic Table?
   (1) the number of neutrons in the atom     (3) the number of valence electrons in the atom
   (2) the number of protons in the atom     (4) the total number of electrons in the atom

2.) What is the total number of valence electrons in an atom of sulfur in the ground state?
   (1) 6
   (2) 8
   (3) 3
   (4) 4

3.) Which Lewis electron-dot structure is drawn correctly for the atom it represents?
   (1) \( \text{N} \)
   (3) \( \text{O} \)
   (2) \( \text{F} \)
   (4) \( \text{Ne} \)

4.) Which Lewis electron-dot diagram represents a boron atom in the ground state?
   (1) \( \text{B} \)
   (3) \( \text{B}^+ \)
   (2) \( \text{B}^- \)
   (4) \( \text{B}^+ \)

5.) Compared to the energy and charge of the electrons in the first shell of a Be atom, the electrons in the second shell of this atom have
   (1) less energy and the same charge
   (2) less energy and a different charge
   (3) more energy and the same charge
   (4) more energy and a different charge

6.) In the ground state, which atom has a completely filled valence electron shell?
   (1) C
   (2) V
   (3) Ne
   (4) Sb

7.) An atom in the ground state has two electrons in its first shell and six electrons in its second shell. What is the total number of protons in the nucleus of this atom?
   (1) 5
   (2) 2
   (3) 7
   (4) 8

8.) Which Lewis electron-dot diagram represents a nitrogen atom in the ground state?
   (1) \( \text{N} \)
   (2) \( \text{N}^- \)
   (3) \( \text{N}^+ \)
   (4) \( \text{N}^0 \)

Base your answer to question 9 on the electron configuration table shown below.

<table>
<thead>
<tr>
<th>Element</th>
<th>Electron Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>2-8-8-2</td>
</tr>
<tr>
<td>Y</td>
<td>2-8-7-3</td>
</tr>
<tr>
<td>Z</td>
<td>2-8-8</td>
</tr>
</tbody>
</table>

9.) What is the total number of valence electrons in an atom of electron configuration X?