Chemistry I-Standard

Bohr Diagrams Problem Set

Use the Bohr Model of the Hydrogen atom to answer the following questions:

1. An electron falls from n=6 to n=2. What is the wavelength (with the appropriate units) for the photon which is emitted?

2. An electron falls from n=6 to n=3. What type of electromagnetic radiation is emitted?

3. An electron falls from n=4 to n=1. Does the photon emitted have a higher or lower frequency than microwave radiation?

4. List at least three shortcomings of the Bohr Model of the atom.

For the following problems, fill by bubbling in the Bohr diagram for the substance indicated:

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| 5. | Lithium (Z = 3) | 6. | Nitrogen (Z = 7) |
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7. Based on the diagrams above, how many electrons can populate the first energy level? The second energy level? Is this true for all elements we will study in this course? Answer all questions in the space below:

Draw Bohr Diagrams for each of the following elements. Remember the shaded region is the nucleus.

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| 8.  | Helium (He, Z =2) | 9. | Oxygen (O, Z = 8) | 10. | Magnesium (Mg, Z = 12) |
|  |  |  |  |  |  |
| 11. | Phosphorus (P, Z = 15) | 12. | Chlorine (Cl, Z = 15) | 13. | Argon (Ar, Z = 18) |
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