Electron Configuration

A photon of energy 4.9 eV strikes the atom. Draw an arrow showing the electron’s motion and label it 'Absorption' or 'Emission.'

n = 3 ———————————————

n = 2 ——————————————— ■ electron starts here

n = 1 ———————————————

* What happens to the photon and what does this tell you about the atom’s energy?

The excited electron releases a photon. Draw an arrow showing the transition.

n = 4 ——————————————— ■ electron starts here

n = 3 ———————————————

n = 2 ———————————————

n = 1 ———————————————

* What happens to the atom’s stability?

Explain the following.

* Aufbau Principle-
* *Exception:*
* Pauli Exclusion Principle-
* Hund’s Rule-

Define each quantum number.

n=

l=

ml=

ms=

Complete the table below by including a range of all possible values.

|  |  |  |  |
| --- | --- | --- | --- |
| n | l | ml | ms |
| 1 |  |  |  |
| 2 | (0,1) |  |  |
| 3 |  | (-2,-1,0,1,2) |  |
| 4 |  |  | (-1/2, 1/2) |

Write the full electron configuration for the following elements.

1. Copper
2. Bromine
3. Potassium ion
4. Bismuth
5. Magnesium ion

Write the noble electron configuration for the following elements.

1. Aluminum
2. Calcium
3. Oxygen ion
4. Arsenic
5. Scandium ion

Identify the following elements based on their configuration.

1s2 2s2 2p6 3s1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1s2 2s2 2p6 3s2 3p6 4s2 3d10 4p6 5s2 4d6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[Kr] 5s2 4d10 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[Xe] 6s2 4f14 5d10 6p2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[Rn] 7s2 5f14 6d4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fill in the diagram for the following elements.

1. Sodium

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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1. Nitrogen

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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1. Manganese

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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1. Copper

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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