

Electron Orbitals and Energy Level Diagrams Worksheet

Determine what elements are denoted by the following electron configurations. You may use a periodic table as a reference:

1. $1s^2 2s^2 2p^6 3s^1$
2. $1s^2 2s^2 2p^6 3s^2 3p^5$
3. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
4. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$

Explain what is wrong (if anything) with the following electron configurations:

5. $1s^2 2s^2 2p^6 3s^2 3p^2 4s^6 3p$
6. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^2$
7. $1s^2 2s^2 3s^2 3p^6 4s^2 3d^4$
8. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^2$

Construct the electron configurations for the atoms which contain the following numbers of electrons:

9. 26
10. 22
11. 17
12. How many electrons would an atom need to have before it can begin filling the 3s sublevel?
13. What is the first element that has enough electrons to have one in the 3s sublevel?
14. How many electrons would an atom need to have before it can begin filling the 3d sublevel?
15. What is the first element that has enough electrons to have one in the 3d sublevel?